990-2

Metal/Nonmetal - Underground Fatalities Second Half - 1990

U.S. Department of Labor
Mine Safety and Health Administration

ABSTRACTS WITH ILLUSTRATIONS

ANALYSIS AND SUGGESTED USES

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U.S. Department of Labor
Lynn Martin
Secretary

Mine Safety and Health Administration
William J. Tattersall
Assistant Secretary

INTRODUCTION

The 1990 Fatal Illustration Program is divided into four categories or subject areas. These categories are underground coal mining; surface coal mining; underground metal/nonmetal mining; and surface metal/nonmetal mining. Fatalities in each category are grouped by accident type.

The materials in this unit include illustrated abstracts (summaries) of all chargeable underground metal/nonmetal mining fatalities for the second six months of 1990 accompanied by 35mm slides.

A statistical analysis is included for fatalities that occurred during July through December 1990. The analysis examines the following areas: the victim's experience, the accident classification, the victim's occupation, and the size of the mine where the fatality occurred. Tables are included in this package. They are divided into first half and second half data for 1990. The tables tabulate age and experience of the victim, accident classification and occupation of the victim, and mine size and location of the accident. A slide index is also included which helps locate fatalities for a particular occupation, accident classification, location, and mine size.

DISCLAIMER

The abstracts included in this program are intended to be used for instructional purposes. Efforts are made to base this data on MSHA's final accident investigation reports. However, preliminary investigation information may have been used for these abstracts to meet the deadline for this publication.

FATALITIES - UNDERGROUND METAL/NONMETAL MINES
SECOND HALF 1990

STATISTICAL ANALYSIS

Eight fatal accidents occurred at underground metal/nonmetal mines during July through December 1990.

Victim's Age

- All of the fatalities occurred to miners 50 years of age or younger.

Victim's Experience

- Two fatalities involved miners with over 26 years of total mining experience.

Accident Classification

- Three of the fatalities involved fall of roof/back/face/highwall.

Mine Size

- Six of the fatalities occurred at large mines (20 or more employees).

Mining Operation

- Three fatalities occurred at zinc operations, and a double fatality occurred at a salt operation.

Contractor Fatalities

- One fatality occurred to a contract miner.

***** NOTE *****

Due to consecutive fatal case numbering, it appears that metal/nonmetal fatalities total 58 for 1990. However, the actual total is 56 because fatal case numbers 31 and 34 were later determined as not chargeable to the mining industry.

FATALITIES BY VICTIM'S AGE
UNDERGROUND METAL/NONMETAL

First Half 1990

Age (Years)	Number of Fatalities
36-40	1
46-50	1
51-55	1

Second Half 1990

Age (Years)	Number of Fatalities
26-30	1
36-40	4
41-45	1
46-50	2

FATALITIES BY VICTIM'S EXPERIENCE
UNDERGROUND METAL/NONMETAL

First Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
6 mos. - 1 yr.		1	1
1 - 2 yrs.	1	1	1
16 - 20 yrs.		1	
26 - 30 yrs.	1		1
30 - 35 yrs.	1		

Second Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
1 - 6 mos.		2	1
1 - 2 yrs.	1	1	1
3 - 4 yrs.	1	1	2
5 - 6 yrs.		1	
9 - 10 yrs.	1	1	1
13 - 14 yrs.	2	2	2
25 - 26 yrs.	1		1
30 + yrs.	1		
Unknown	1		

FATALITIES BY ACCIDENT CLASSIFICATION
UNDERGROUND METAL/NONMETAL 1990

Classification	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Electrical		1	1
Fall of Face/Highwall		1	1
Fall of Ground	1	1	2
Fall of Material	1		1
Fall of Roof/Back		3	3
Falling/Sliding Material		1	1
Ignition/Explosion of Gas		1	1
Slip/Fall of Person	1		1

FATALITIES BY VICTIM'S OCCUPATION
UNDERGROUND METAL/NONMETAL 1990

Occupation	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Development Machineman		1	1
Drill Operator	1		1
Lead Miner		1	1
LHD Operator		1	1
Master Electrician		1	1
Mine Foreman	1	1	2
Miner	1	1	2
Scaler		1	1
Scaler/Laborer		1	1

FATALITIES BY MINE SIZE
UNDERGROUND METAL/NONMETAL 1990

Mine Size	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Small *	0	2	2
Large **	3	6	9

* Less than 20 employees
** 20 or more employees

FATALITIES BY MINING OPERATION
UNDERGROUND METAL/NONMETAL 1990

Mining Operation	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Development/Base Metals		1	1
Gold	1	1	2
Platinum		1	1
Salt	1	2	3
Silver	1		1
Zinc		3	3

FATALITIES BY TYPE OF MINING OPERATION
UNDERGROUND METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened at:
DEVELOPMENT/BASE METAL operations on slide 8
GOLD operations on slide 9
PLATINUM operations on slide 5
SALT operations on slide 4
ZINC operations on slides 6, 7, and 10

FATALITIES BY MINE SIZE
UNDERGROUND METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened at:
SMALL MINES* on slides 6 and 8
LARGE MINES ** on slides 4, 5, 7, 9, and 10

* Less than 20 employees
** 20 or more employees

SLIDE INDEX

FATALITIES BY OCCUPATION
UNDERGROUND METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened to:

DEVELOPMENT MACHINEMEN on slide 10
LEAD MINERS on slide 9
LHD OPERATORS on slide 4
MASTER ELECTRICIANS on slide 6
MINE FOREMEN on slide 8
MINERS on slide 5
SCALERS on slide 7
SCALERS/LABORERS on slide 4

FATALITIES BY ACCIDENT CLASSIFICATION
UNDERGROUND METAL/NONMETAL - SECOND HALF 1990

You will find:

ELECTRICAL fatalities on slide 6
FALL OF FACE/HIGHWALL fatalities on slide 7
FALL OF GROUND fatalities on slide 8
FALL OF ROOF/BACK fatalities on slides 4 and 5
FALLING/SLIDING MATERIAL fatalities on slide 9
IGNITION/EXPLOSION OF GAS fatalities on slide 10

ABSTRACT OF INVESTIGATION

Date: November 19, 1990

Slide Number: 4 (Fatal Case Numbers: 55 and 56)

Accident Classification: Fall of Roof/Back

Type of Mine: Salt - Underground

Location: New York

	Case #55	Case #56
Age of Victims:	38	44
Total Mining Experience:	14 years	1 year
Total Experience at this Mine:	14 years	1 year
Total Experience at this Job:	14 years	6 months

Number Employed at Mine: 112

Number Working at Time of Accident: 50

Time of Accident: 11:45 a.m.

Mining Height: 14 feet

Miners were preparing to start undercutting operations when a fall of roof occurred at the face. Five employees were involved in the accident; two were fatally injured, and one was seriously injured. Approximately 50 to 65 tons of salt fell causing fatal injuries to the LHD operator and the scaler/laborer, and severe injuries to the group leader. Examining and testing for loose roof had not been conducted prior to starting work.

Means of Prevention

1. Persons experienced in examining and testing for loose ground shall be designated by the mine operator. Appropriate supervisors or other designated persons shall examine and, where applicable, test ground conditions in areas where work is to be performed prior to work commencing, after blasting, and as ground conditions warrant during the work shift.
2. Where manual scaling is performed, a scaling bar shall be provided. This bar shall be of a length and design that will allow the removal of loose material without exposing the person performing the work to injury.

ABSTRACT OF INVESTIGATION

Date: December 28, 1990

Slide Number: 5 (Fatal Case Number: 58)
Accident Classification: Fall of Roof/Back
Type of Mine: Platinum - Underground
Location: Montana

Age of Victim: 39
Total Mining Experience: 2 years, 7 months
Total Experience at this Mine: 2 years, 7 months
Total Experience at this Job: 1 year, 6 months
Number Employed at Mine: 481
Number Working at Time of Accident: 180
Time of Accident: 12:00 noon
Mining Height: 9 feet

A stope miner was fatally injured while working under a bolted brow during raise cribbing preparation. The victim was completely buried under a fall of roof. The victim's partner, who was working nearby, was not injured. The fall of ground occurred as a result of the failure of two of the five support bolts used to maintain the overhead brow.

Means of Prevention

When ground support is necessary, the support system shall be designed, installed, and maintained to control the ground in places where persons work or travel in performing their assigned tasks.

ABSTRACT OF INVESTIGATION

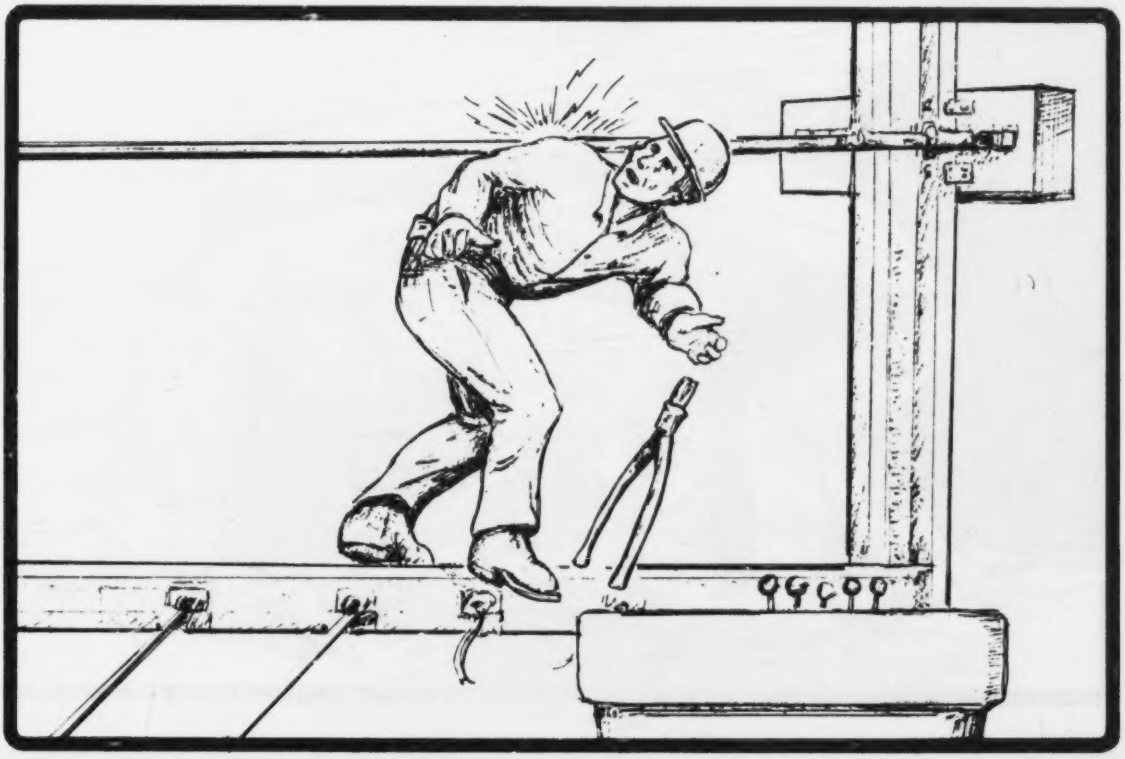
Date: July 17, 1990
Slide Number: 6 (Fatal Case Number: 30)
Accident Classification: Electrical
Type of Mine: Zinc - Surface at Underground
Location: New York

Age of Victim: 37
Total Mining Experience: 14 years
Total Experience at this Mine: 14 years
Total Experience at this Job: 14 years
Number Employed at Mine: 8
Number Working at Time of Accident: 15
Time of Accident: 2:15 p.m.
Mining Height: 12 to 18 feet

A master electrician was assigned to remove abandoned high-voltage power lines which supplied power to an inactive compressor room. The master electrician and an apprentice took the bucket lift truck to the high-voltage tower where the power lines were to be removed. They turned off the power to the pump circuit, hoist, fan circuit, and compressor room. The breaker, which supplied 2,300 volts of power to the mine, was left in the on position. Upon realizing that he could not reach all of the wires from the bucket of the lift truck, the master electrician put on a safety belt and raised himself up to the lower crossmember of the high-voltage tower. He attached his safety belt lanyard to the tower crossmember, climbed out of the bucket onto the lower crossmember, and started cutting the power lines leading to the compressor room. After completing the work, and while reentering the bucket, he apparently lost his balance and contacted one phase of the energized 2,300 volt line supplying power to the mine, causing fatal injuries.

Means of Prevention

Deenergize power circuits and lockout switches before work is done, unless hot-line tools are used.



ABSTRACT OF INVESTIGATION

Date: July 23, 1990
Slide Number: 7 (Fatal Case Number: 33)
Accident Classification: Fall of Face/Highwall
Type of Mine: Zinc - Underground
Location: Tennessee

Age of Victim: 28
Total Mining Experience: 8 years, 1 month
Total Experience at this Mine: 2 years, 3 months
Total Experience at this Job: 2 years, 3 months
Number Employed at Mine: 284
Number Working at Time of Accident: 140
Time of Accident: 8:30 a.m.
Mining Height: 12 feet

A scaler (victim), a laborer, and a loader operator began scaling from the top of the muck pile, so that the development drift could be mucked out. After scaling all that could be reached, the loader operator began to muck the heading with the front-end loader. The scaler and the laborer continued to scale the ribs each time the loader operator went to dump a load. The scaler was wetting down the area while the laborer and loader operator began scaling again. The scaler turned off the water and went to the face with his bar. A slab, approximately 5 feet long by 4 feet wide by 14 inches thick and weighing an estimated 2 tons, fell from the face causing fatal injuries to the scaler.

Means of Prevention
Perform scaling from a location which will not expose persons to falling material.

ABSTRACT OF INVESTIGATION
Date: October 4, 1990
Slide Number: 8 (Fatal Case Number: 46)
Accident Classification: Fall of Ground
Type of Mine: Development/Base Metals - Underground
Location: Colorado

Age of Victim: 50
Total Mining Experience: 32 years (Contractor)
Total Experience at this Mine: 10 years
Total Experience at this Job: 10 years
Number Employed at Mine: 4 (Contractor)
Number Working at Time of Accident: Unknown
Time of Accident: 8:45 a.m.
Mining Height: 10 feet

A mine foreman was roof bolting on the left side of a drift near the face while a miner installed bolts on the right side. Another miner assisted both men in bolting. The miner who was helping noticed a small rock fall from the right side of the drift. He could not detect other movements, but had the feeling that he should move towards the portal. He yelled for everyone to get out while running towards the portal. When he turned around he could not see the other two miners, but heard one of them yelling that his leg was broken. The miner went outside for help and to get a stretcher and first aid supplies. He and a mechanic gave first aid to the miner, but they could not locate the foreman. The foreman was fatally injured when approximately 70 tons of material fell. He was buried for almost 9 hours in the 10- by 10-foot drift.

Means of Prevention
Reevaluate the ground structure of a drift to asses the need for additional ground support or a change in the drifting position on the vein structure.

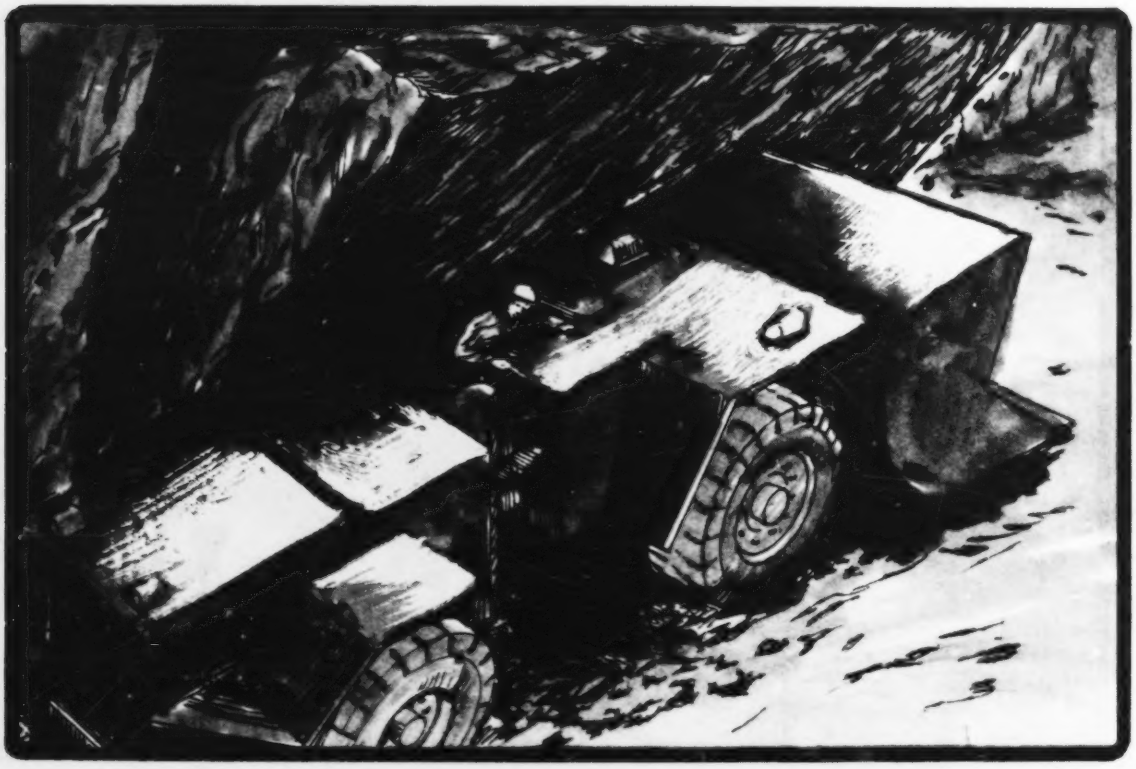
ABSTRACT OF INVESTIGATION
Date: September 21, 1990
Slide Number: 9 (Fatal Case Number: 44)
Accident Classification: Falling/Sliding Material
Type of Mine: Gold - Underground
Location: California

Age of Victim: 45
Total Mining Experience: 16 years
Total Experience at this Mine: 6 months
Total Experience at this Job: 3 months
Number Employed at Mine: 42
Number Working at Time of Accident: Unknown
Time of Accident: 10:00 a.m.
Mining Height: 17 to 19 feet

A lead miner was fatally injured by a fall of ground, while operating an LHD. The victim was crushed against the seat and frame of the loader. The accident occurred because the rib was not adequately supported. In addition, the LHD unit was not equipped with a falling object protective structure.

Means of Prevention

1. When ground support is necessary, the support system shall be designed, installed, and maintained to control the ground in places where persons work or travel in performing their assigned tasks.
2. Front-end loaders shall be provided with falling object protective structures if used in an area where falling objects could create a hazard to the operator.



ABSTRACT OF INVESTIGATION

Date: September 4, 1990

Slide Number: 10 (Fatal Case Number: 42)
Accident Classification: Ignition/Explosion of Gas
Type of Mine: Zinc - Underground
Location: Tennessee

Age of Victim: 50
Total Mining Experience: 26 years
Total Experience at this Mine: 26 years
Total Experience at this Job: 5 years, 7 months
Number Employed at Mine: 113
Number Working at Time of Accident: 70
Time of Accident: 9:30 a.m.
Mining Height: 14 feet

A development machineman and his partner were assigned to continue development work driving east and west headings towards each other. The development machineman moved the drill into position and began drilling blast holes in the face of the west heading. He was drilling the sixth hole when he apparently drilled into a pocket of methane gas and an explosion occurred. About an hour later the mine's rescue team found the development machineman fatally injured in front of the jumbo drill. The ignition source could not be determined.

Means of Prevention

1. Employees should be trained in mine gases and their hazards and in the use of gas detection equipment.
2. A methane testing program should be implemented.